IN THE CLAIMS:

The claims are pending as follows:

1. (Original) A process for producing a semiconductor device, comprising:

a step of forming a gate insulator on a silicon substrate; and

a step of forming a gate electrode, a source electrode and a drain electrode on the silicon substrate,

wherein said step of forming the gate insulator includes

a first step of forming a silicon nitride film on the surface of the silicon substrate by irradiating to the silicon substrate nitrogen radicals generated from a radical nitriding apparatus, the radical nitriding apparatus being provided with a plasma chamber for generating nitrogen plasma including the nitrogen radicals, a substrate susceptor, provided outside of the plasma chamber, for supporting the silicon substrate, and ion deflecting means provided between the plasma chamber and the substrate susceptor.

2. (Original) The process according to claim 1, wherein said ion deflecting means are ion deflecting electrodes.

3. (Original) The process according to claim 1, wherein, in said step of forming a silicon nitride film more atomic nitrogen radicals are generated than N_2 radicals in the plasma chamber.

4. (Original) The process according to claim 2, wherein, in said step of forming a silicon nitride film more atomic nitrogen radicals are generated than N_2 radicals in the plasma chamber.

5. (Withdrawn) The process according to claim 1, wherein said step of forming a gate insulator on a silicon substrate further includes a step of forming a silicon oxinitride film, by oxidizing said silicon nitride film after said step of forming a silicon nitride film.

6. (Withdrawn) The process according to claim 2, wherein said step of forming the gate insulator on a silicon substrate further includes a step of forming a silicon oxinitride film, by oxidizing the silicon nitride film after said step of forming a silicon nitride film.

7. (Withdrawn) The process according to claim 3, wherein said step of forming the gate insulator on a silicon substrate further includes a step of forming a silicon oxinitride film, by oxidizing the silicon nitride film after said step of forming a silicon nitride film.

8. (Withdrawn) The process according to claim 4, wherein said step of forming the gate insulator on a silicon substrate further includes a step of forming a silicon oxinitride film, by oxidizing the silicon nitride film after said step of forming a silicon nitride film.

9. (Withdrawn) The process according to claim 1, wherein said step of forming the gate insulator on a silicon substrate further includes a second step of forming a metal film on the silicon nitride film, and a step of forming a silicon oxinitride film and a metal oxide film by oxidizing the silicon nitride film and the metal film, after said step of forming a silicon nitride film.

10. (Withdrawn) The process according to claim 2, wherein said step of forming the gate insulator on a silicon substrate further includes a second step of forming a metal film on the silicon nitride film, and a step of forming a silicon oxinitride film and a metal oxide film by oxidizing the silicon nitride film and the metal film, after said step of forming a silicon nitride film.

11. (Withdrawn) The process according to claim 3, wherein said step of forming the gate insulator on a silicon substrate further includes a second step of forming a metal film on the silicon nitride film, and a step of forming a silicon oxinitride film and a metal oxide film by oxidizing the silicon nitride film and the metal film, after said step of forming a silicon nitride film.

12. (Withdrawn) The process according to claim 4, wherein said step of forming the gate insulator on a silicon substrate further includes a second step of forming a metal film on the silicon nitride film, and a step of forming a silicon oxinitride film and a metal oxide film by oxidizing the silicon nitride film and the metal film, after said step of forming a silicon nitride film.

13. (Withdrawn) The process according to claim 1, wherein said step of forming the gate insulator on a silicon substrate further includes a step of forming a ferroelectric film on the silicon nitride film after said step of forming a silicon nitride film.

14. (Withdrawn) The process according to claim 2, wherein said step of forming the gate insulator on a silicon substrate further includes a step of forming a ferroelectric film on the silicon nitride film after said step of forming a silicon nitride film.

15. (Withdrawn) The process according to claim 3, wherein said step of forming the gate insulator on a silicon substrate further includes a step of forming a ferroelectric film on the silicon nitride film after said step of forming a silicon nitride film.

16. (Withdrawn) The process according to claim 4, wherein said step of forming the gate insulator on a silicon substrate further includes a step of forming a ferroelectric film on the silicon nitride film after said step of forming a silicon nitride film.